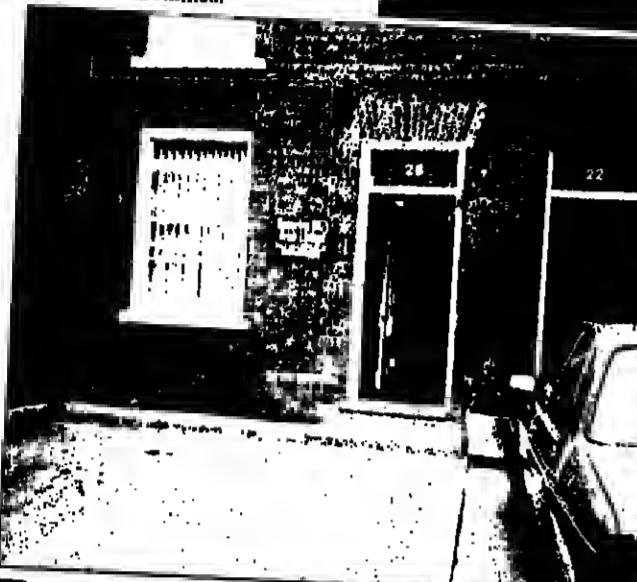


A touch of class

Deep overhanging eaves, brick bonding and tinted glass have given this new housing development a touch of the Arts & Crafts, while using up-to-the-minute materials.

Dynamic slopes have helped produce the sharply defined close-mirrored bays, and their lightness has reduced the need for expensive strengthening of the roof structure.

Designed by architects Pinchin & Kellow, the 22 "executive" houses are in a landscaped setting close to Wimbledon Common.



On the old lines

The former Exchange Station in Liverpool has been refurbished and extended at a cost of £1.5 million to form offices for letting. The Tithesham Street facade is to be the longest retained facade in Europe. The corner with Blaize Street has been rebuilt to match the orders on the front using stone from the former Blaize Chambers. The clock has been restored by a local specialist, and the mechanism brought down to the ground floor, being placed on view in a bullet-proof box.

The station buildings which have been retained are the second on the site. The first station was built in 1850 and replaced in 1886. The hotel was closed in 1972, the last train ran in 1974, and the new building is ready for letting 100 years after the second station was opened. The new building has 650 m² of floor space and 435,000 facing bricks. (Architects: Kingham Knight Associates, Liverpool; job architect Tony Griffiths. Contractor: Tysons Contractors. Letting agents: Matthew Goodman Partnership).

Butterley on move

Sited in the heart of Nottingham's architectural community, Butterley Brick's new Midlands showroom and sales office at 28 Clarendon Street is featuring a display of its 130 facing bricks, clay pavers and brick slips.

Michael Rose, Butterley Brick's managing director, at the opening ceremony in July explained that the decision to relocate the Midlands showroom from its factory at Alfreton was taken to "encourage specifiers, builders, developers and the general public to use the facilities".



Passing the test

Above and below: This new office block in Woking tested the manufacturer's blocks. The contract called for the production of 6,000 blocks and 100,000 specials, 50 per cent of which were to be of a colour mixture to match the existing building. The colour mixture is in the facing bricks.



Masonry Society symposium

THE British Masonry Society is holding its first International Symposium at the Bloomsbury West Hotel, London, from Tuesday, December 2, to Thursday, December 4, 1986.

With the objective of promoting the science and practice of masonry construction, the Society, which was inaugurated last June, straddles the emotional gulf that can exist between the manufacturers of bricks and blocks, and provides a platform for the dissemination of information on all matters from the basic raw materials through to the construction and aesthetic design of masonry.

The seminar will contain papers dealing with bricks, mortar, dpc's, wall ties and other ancillary products, and their influence on design, construction and post-construction performance.

Historically, BCRA was founded more than 40 years ago to serve the UK ceramics industry, but now increasingly it is operating on an international basis.

With a much wider corpus of customers, Ceram Research is able to maintain a laboratory of international stature, serving all forms of ceramic research, from advanced ceramics which includes such projects as the Department of Trade & Industry's Ceramic Application in Reciprocating Engines programme, to more mainstream investigations into, for instance, the strength of reinforced brickwork.

Of its annual turnover of £4 million, Ceram Research spends £750,000 a year on research directly involved with the brick industry and related products.

This includes raw material research, investigations into the environmental performance of brickwork, structural work involved with British Standards Codes of Practice, as well as research carried out directly for member companies.

Dr Geoff Edgell, head of the Heavy Clay Division, explained

Redland on RIBACAD

AFTER six months' hard labour, Redland Bricks has announced that information on its special shaped bricks, manufactured to British Standard 4729, is now available to building designers through RIBACAD — a new service whereby CAD users can obtain free software information on products manufactured by major suppliers which is compatible with their own CAD systems.

Designers can now reproduce special shaped bricks, plus standard application details, and incorporate these to scale in their overall designs in a matter of seconds. Up to four views of each brick are given — plan, two elevations and isometric — plus its use with various bond patterns.

Quality approvals for eight brickworks

LAST year the inauguration of the Ceramic Industry Certification Scheme (CICS) — a third party assurance scheme based on British Standard 5750 specially devised for manufacturers in the ceramic industries — was reported in *Building Design's* Brick Supplement.

Now after about a year of operation a total of eight brickworks have received certificates of approval after assessment based on the requirements of BS 5750: Part 2 and the Quality Assessment Supple-

ment No QAS/BT/1.

The bricks honoured include: George Armitage & Sons, Howley Park Works and Swillington Works, Butterley Brick; Wainwriges Works, Carlton Main Brickworks; Grimesthorpe, Rudgwick Brickworks; Rudgwick, Salvesen Brick; Cheadle Works and Denion Works, and Steetley Brick and Tile; Todmills Works. It is also reported that the Accrington brickworks of George Armitage is awaiting CICS approval.

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News in pictures

**Golden brown**

Planning requirements dictated the use of brick for the Anglia Water Authority's new headquarters at Colchester. Breaking with local custom (which favoured the use of red brick) the architects, Pick Everard Keny & Gibson, chose Ibstock Building Products' Roughdale Golden Brown Mull.

The brief was to design a low-energy, low-cost building with high-quality finishes to house approximately 280 staff in offices which generally have natural light and ventilation. This requirement has led to a higher than normal proportion of external wall to floor area.

The building is designed as a series of seven octagons set around a landscaped inner courtyard. As well as offices, the accommodation includes a board room and committee

rooms on the top floor, an air-conditioned computer room and a canteen and kitchen.

The site was previously occupied by an old reservoir and a pumping station which dated from the end of the last century. Because of the site conditions, filling was needed for the new offices complex and the old pumping station, which is still occasionally used, is now about to be reconverted by the architects.

Staff of the Anglia Water Authority occupied the offices in June 1985. Whupsey was the main contractor and the contract value was in the region of £2 million.

Pick Everard Keny & Gibson is a multi-disciplinary practice. Its own quantity surveyors and structural engineers were used on the project.

Market style

Designed to emulate the adjacent old market building, this development in Osnabruck Square, Derby, uses Ibstock Bristol Red facing bricks for general wall surfaces, with Ibstock Bristol Gold facings to emphasise the arched door and window openings.

The architect for the project are David Hall Associates of Derby, and the contractors are Wilson Bowden Properties.

**Up from the ashes**

Situated on the riverside in the old town of Hull, the second of a group of 18th and 19th century warehouses has just been converted into flats and studios after a period of semi-dilapidation.

The conversion of this Grade II-listed building was carried out after a disastrous fire and it is now appropriately named Phoenix House. The project was a joint venture by Turner Construction and Tarmac Homes, a design by architects Fisher, Ellingtonworth & Partners. Abbey Blend facings from Yorkshire Brick were chosen for the work because they matched the existing brickwork.

A central bollard was created in a 17th century barn and hay loft on the site, from which district heating and hot water is supplied to the whole development.

On completion, accommodation had been created for about 78 people in 24 houses and 15 flats.

The project received a commendation in the RIBA Awards, and an earlier phase of the scheme received a European Heritage award and a Times/RICS Conservation award.

Bricks and pavers for the project are Redland's Walsall Rough Stock, chosen because they blend so well with the existing brickwork.

News in pictures

Now on the air

Making good use of the sloping site, MWT Architects' design for BBC Radio Devon's new studio block in Exeter places the studios at the lower ground level with offices above. Two types of Westbrick products have been used in the design — Westbrick No 50 facings for general wall surfaces and No 42 facings to pick out the detailing round the windows. The client for the job was EBC Developments and the main contractor was Sleeman Construction.

**Holding the fort**

Probably built around 1550-1600, Arad Fort at Mullinrag, Ballyrull, was lost for decades beneath a pile of sand.

It was rediscovered recently, and the government of Ballyrull commissioned Scottish archaeologist Dr Archie Wall to restore it.

Butterley Class II engineering bricks from its Wulngrove works are being used to construct a series of piers around the base of the fort to help support the upper masonry.

Eventually Butterley's bricks will be concealed by layers of rendered masonry.

MASTER PIECES

BORAL EDENHALL

Architectural Masonry, Bricks and Pavers.

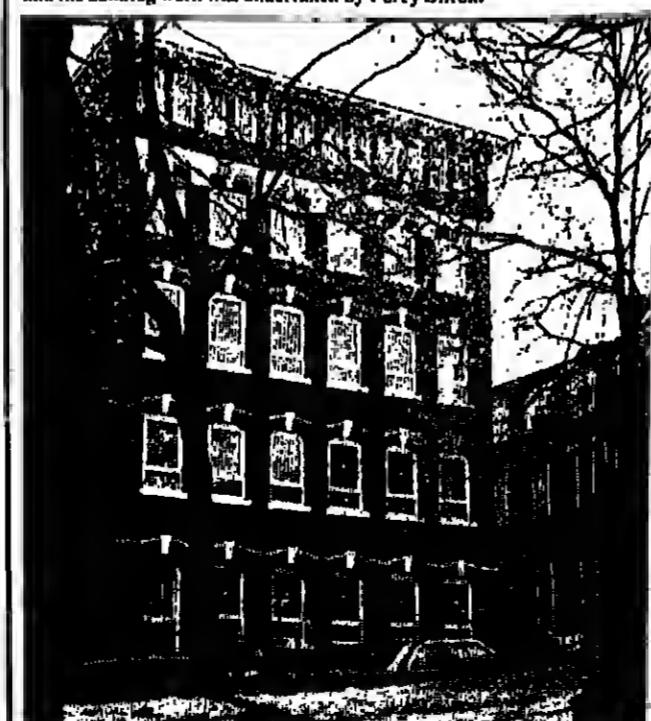
Boral Edenhall Concrete Products Ltd, 100, Boral Park, Edenhall, Preston, Lancashire PR5 8PL. Tel: 0772 740000. Telex: 580000.

Purpose-made profiles

Converting a disused warehouse in St Paul's Square, Birmingham, to provide flats for young single people involved the manufacture of a number of purpose-made shapes by Ibstock Building Products in its Leicester Red Stock range. Associated Architects have designed this block of single-person flats for Trident Housing Association. Two unusual features of this scheme are the use of stack-bonded brickwork and the abnormal number of special bricks. The block, which recently won a Housing Design Award, is now complete, successfully securing the much-needed park.

**Garden gates**

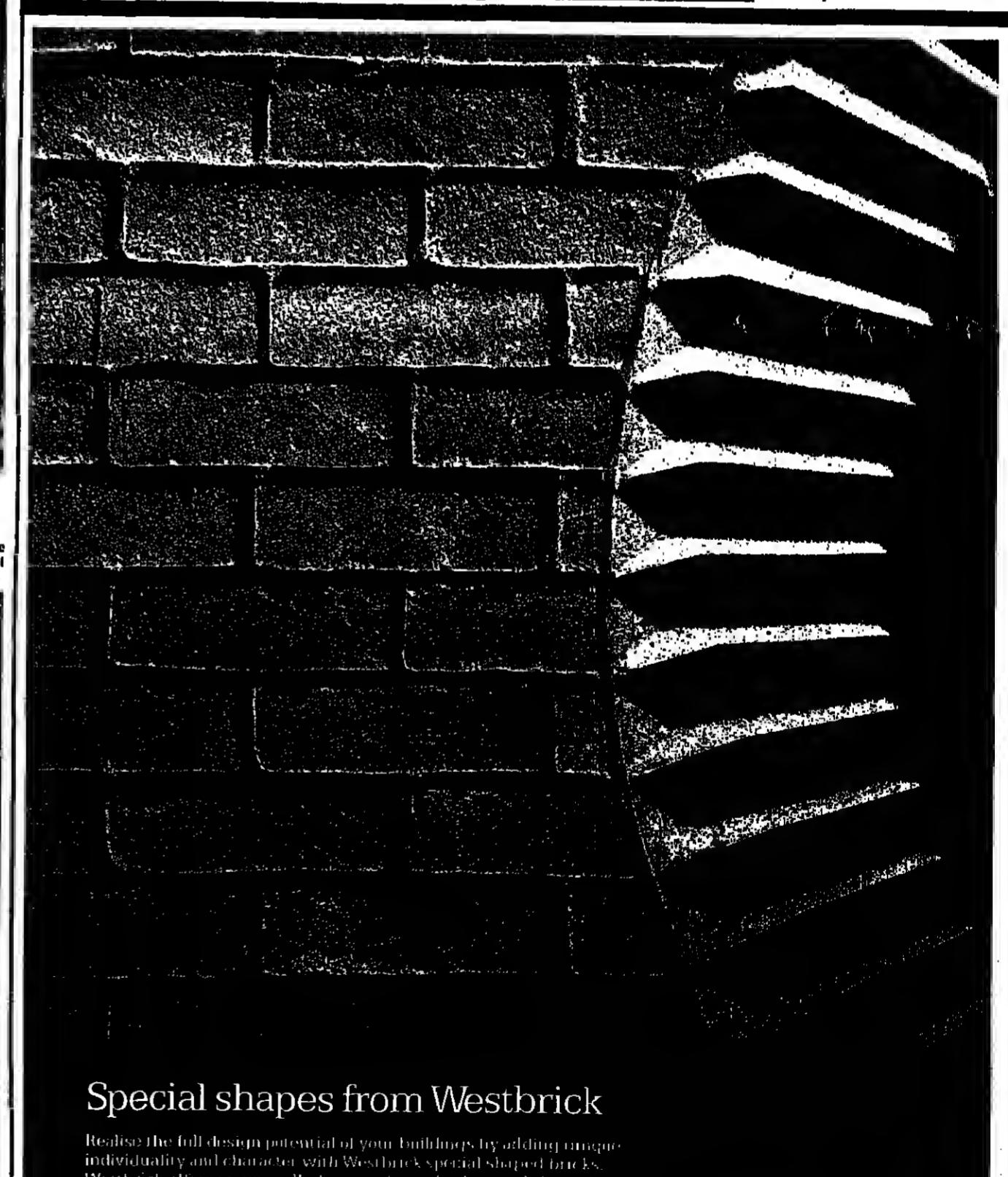
Abbey Blend facings from Yorkshire Brick were used in the construction of the new piers of the main entrance gates to the Trentham Gardens leisure complex. Chartered surveyors Griffin Jones & Associates were responsible for the design and the building work was undertaken by Percy Dilton.

**Pedestrian pavers**

Aldridge, Staffordshire, chamfered pavers from Ibstock Building Products were chosen for this major pedestrianisation scheme in Leicester under the joint control of the city architect's and the city engineer's departments.

**Singles speciality**

On a long, narrow strip of land, sandwiched between a pavilion and a multi-storey car park near St Paul's Square, Birmingham, Associated Architects have designed this block of single-person flats for Trident Housing Association. Two unusual features of this scheme are the use of stack-bonded brickwork and the abnormal number of special bricks. The block, which recently won a Housing Design Award, is now complete, successfully securing the much-needed park.

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WESTBRICK

Interview

GRAHAM Thompson, the newly elected chairman of the Brick Development Association, is no stranger to the role. This is his second spell in office, his first being from 1982 to 1984 when he presided over what was one of the most significant periods in the association's life. During this time of change the staff was halved, a new director-general was appointed and the operations of the association were massively reorganised—the object being to make the association more effective.

In hindsight, Graham Thompson sees these changes as being almost entirely for the good. From them emerged a more sleek and effective BDA. But will his second term of office be accompanied by similar changes?

The answer is no. Thompson identifies a need now for consolidation. "The BDA should continue doing the things it is good at and expand its role so that bricks and brickwork become associated in the public's mind with the good things of life," he says.

To this end he is a staunch supporter of the BDA's recent

BUILDING A REPUTATION

Bricks should become associated with the good things in life according to the chairman of the BDA. Paul Marsh reports.

advertising campaigns, which have often been aimed at the general public in an effort to increase its awareness of the contribution brickwork can make to a pleasant environment. He believes fervently in the usefulness of the *Brick Bulletin* as a means of encouraging good brickwork design. In addition, the dissemination of technical literature and attention to education, he believes, are "major planks in the association's strategy".

"The BDA should do those promotional things which commercial companies would be unable to do, or would find very difficult," says Thompson.

In some respects, Thompson takes over the reins of a quite different association from the one he steered before. Since his previous term of office Butterley Brick has joined the association, bringing its membership to about 95 per cent of the industry. Now more than ever the association represents the whole industry with the members firmly consenting to the need for a strong BDA.

Thompson is an enthusiast for the brick business. A Londoner, he qualified as a mechanical engineer before entering the brick industry in 1961. He joined Westbrick in 1966 as the general production manager. By

1969 he had become the managing director of the company, a position he holds to this day, after surviving two major changes of ownership—the latest in May 1984 when Tarmac bought Westbrick. He admits it has been immense. Is there then a danger of over-capacity?

Thompson argues: "Investment is not dangerous if the capacity it creates is controlled to the benefit of the market as a whole. It would be very much more dangerous not to produce what the customer wants, when he wants it. The industry now has the capacity to respond to cyclical needs—an ability it has not always had before—and needs are going to continue to be cyclical for the foreseeable future."

With the major capacity in the hands of market-sensitive and profit-orientated companies—and ones who are capable of managing that capacity sensibly—Thompson believes that the industry will be able to respond to changing needs in a way it has never been able to in the past. Companies will be devoted to healthy competition, but not to the desire to sell at all costs, even if it means cutting their own throats.

And what of the way bricks are used today? "Brick is now a specialist cladding material," says Thompson. "This change has been almost imperceptible, but it puts brick into a different market. Quality is important—particularly quality of appearance. When you consider that the price of the bricks themselves in an average house make up only about 3 per cent of its cost, and less than 1 per cent on other building types, brick prices are no longer so important. It is worth paying a little more for quality."

What of the future of the

building industry in this country? Thompson cannot see major expansion for a considerable time. He believes that the building business for the next decade or two will remain within 25 per cent plus minus of its present size. He sadly points out that in the UK we spend less on building than our European neighbours (1.8 per cent of the GNP, whereas the average is around 12 per cent). Nevertheless, in all the vagaries of the building industry's fortunes in the last decade or two, facing brick sales have remained very stable. The major change has been the dramatic decline in common brick demand.

Lobbying is an important part of BDA's function, having regular meetings with MPs of the three major parties to put the brick industry's point of view. It also has a direct entry to the minister—a facility it uses sparingly, reserving it for specific causes.

Thompson believes there is still a lack of understanding in many quarters of how to use bricks well—a lack of understanding because in the years since the last war students have not been taught how to use brickwork. In the 1950s and 60s, during the enthusiasm for new techniques and innovation at all costs, brickwork became unfashionable. It is this break in training which the BDA has to strive to rectify. It must also, in Thompson's opinion, aim to put the message over to the young in schools and colleges.

Diminishing craft skills also concern Graham Thompson. The association co-operating with the CIBT to improve training but, as Thompson puts it, somewhat wryly, "Industry has to work hard to get what it needs from the CIBT."

And so at the outset of Graham Thompson's new term of office and as md of a successful brick company, how does he see the brick business? "As healthy as I've known it in the last 20 years," he replied. The reasons for this he lists—adequate investment in modern plant, changes in the commercial structure of the industry, a more lively outlook and an appreciation that the brick industry needs to sell itself and its services.

Graham Thompson looks forward to his next 20 years in the brick business with confidence.



Graham Thompson, looking forward to his second term in office.

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Mortars

A QUIET revolution is occurring in the staid, traditional building industry. Despite technological changes which have affected almost all construction materials and operations, one of the few materials still produced on site is mortar.

Factory-made mortar, comprising well-graded sand and matured lime putty, produced under factory-controlled conditions, was first introduced in the UK in 1938 and has been in operation ever since. While this was a great step forward from slaking lime on site, it left the job of correctly gauging the cement and establishing the final working consistency of the mortar to site personnel.

The durability of brickwork depends not only on the standard of bricks used and how they are laid, but on the quality of the mortar surrounding them. In too many cases the whole quality control aspect of brickwork depends on a labourer with a shovel mixing the mortar correctly.

To the architect and specifier, who go to great lengths to ensure that their brickwork and mortar specifications are compatible, this haphazard method of adding the cement content to the

MIX 'N' MATCH

In this two-part feature David Hannam, president of the Mortar Producers Association, and Ian Southcott, marketing services manager of RMC Mortars, take a look at the way special mortars have developed in recent years and speculate on their future.

mix can be a nightmare.

A solution (and one that is causing a revolution in site practice) is the introduction of factory-produced, retarded, ready-to-use mortars which already contain the cement and need no further mixing on site.

Accurately proportioned mixes to meet any given specification are eminently suitable for all types of masonry, plastering or rendering purposes. Normally retarded for 36 hours, they are available in a variety of colours. Typical of the service offered by suppliers of retarded ready-to-use mortars is that at Titecon.

This company delivers the material to site in specialised vehicles which discharge the mortar into insulated site containers, (where it is impractical to locate a site mixer or have lorries of cement and sand delivered) the use of retarded ready-to-use mortar is increasingly accepted. It is suitable for all work above or below damp-

proof courses and is available in a variety of mix specifications depending on the properties of the masonry unit, the type of construction and the degree of its exposure. The controlled production of factory-made mortars ensures the accurate proportioning of sand, cement, lime, colouring pigments and admixtures which no site can reproduce. This enhances the durability of the mortar and, with controlled cement and air contents, greatly reduces the chance of frost damage in winter.

Whether for use on large sites (where the material increases productivity), ensures quality control by factory production methods, guarantees specified mix proportions and maintains cleaner and tidier sites) or for small or restricted access contracts, (where it is impractical to locate a site mixer or have lorries of cement and sand delivered) the use of retarded ready-to-use mortar must give way to those based on factory-applied quality control.

The colour code

AS the awareness of coloured mortar as a design tool has become more widespread, its use as an aid to enhance the appearance of brickwork has grown dramatically.

The use of coloured mortar originally grew out of a demand for ready-mixed lime, ie sand mortars, where naturally occurring sands impart a more definitive colour to the mortar produced. In response to this demand, mortar producers developed a range of colours to provide the specifier and contractor with a range to complement the brick colours available.

In the 1950s and 60s the local authority housing boom proved to be an important stimulus to

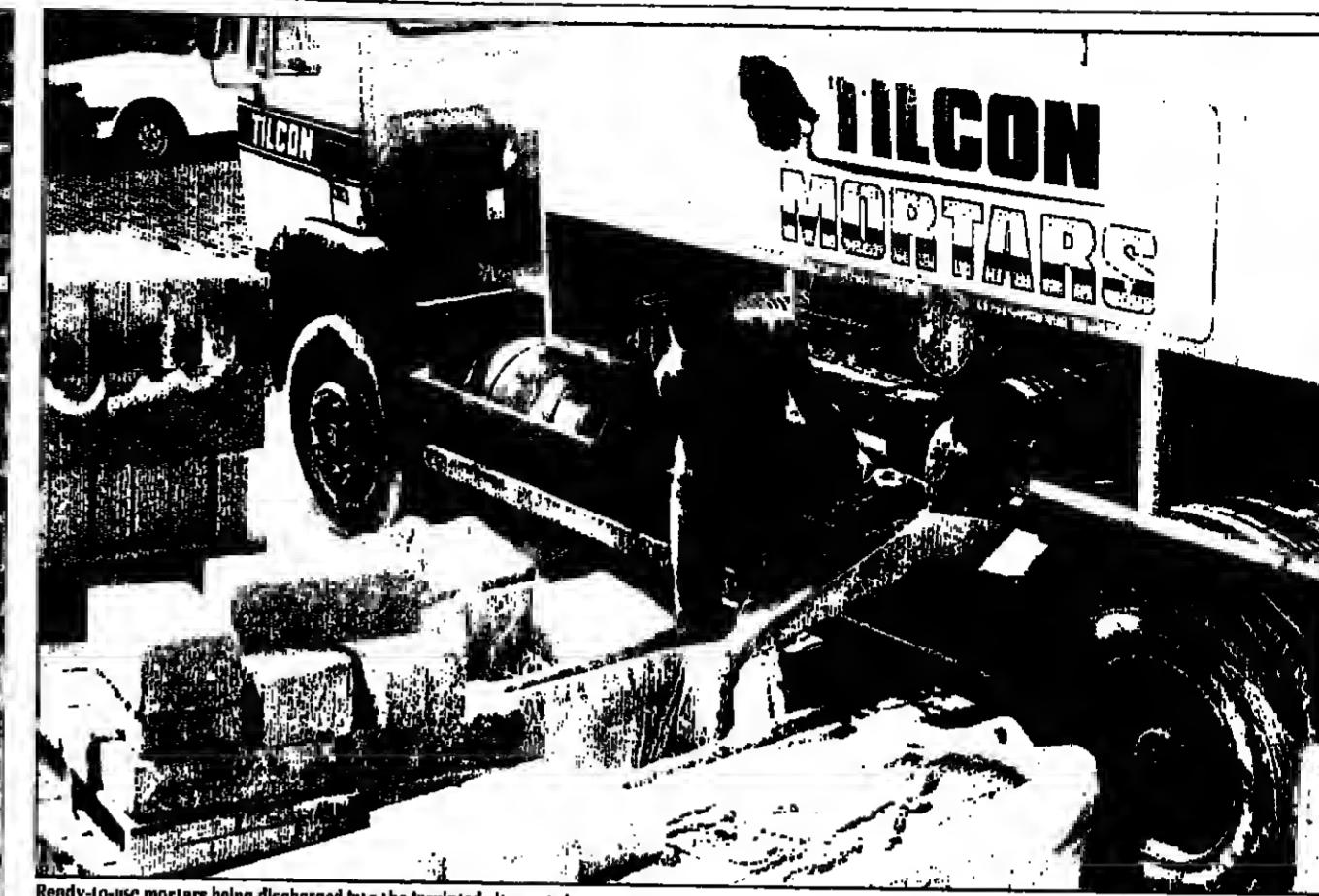


The effect different-coloured mortar can have on a wall built of one type of brick.



Bricklayers applying ready-to-use mortar on the Royal Academy of Music in Glasgow.

Mortars



Ready-to-use mortars being discharged into the insulated site containers.



Parkwood Development courtesy of Sunley Estates Ltd. Concrete block paving by Marley Building Products Ltd.

Hit the streets with colour

Bayferrox Pigments for Concrete Block Paving

Remember when you had little real choice of street-level colour? Dull grey or just black. It was not so long ago, and you weren't the only one who wished that the development you designed could be enhanced by colour right down to the pavement. So did the people who lived there. Because colour matters.

Now the days of cold grey concrete and black top are well and truly numbered. Bayferrox®

pigments in through-coloured concrete have created paving blocks in a range of colours and shades: reds, yellows, browns and black. You can now create softer environments with more harmony, more colour.

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RMC MORTARS PRODUCT FILE

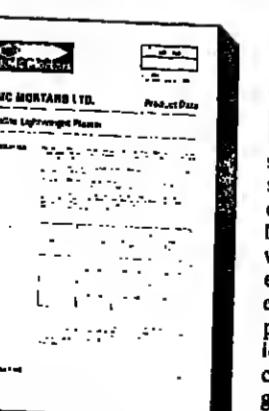
Coloured Mortar

The range of coloured lime/sand mortars available from RMC Mortars provides the specifier with added design dimension for matching, blending or contrasting brick and mortar colour. The 39 colours contained in the RMC Mortars Colour Selector Box provide the basic for your initial choice; subsequently brick panels can be constructed on site so that the final decision can be taken with complete confidence.



Readyspread

Readyspread is a completely ready-to-use mortar developed with product quality and customer service as major criteria. Delivered to site in a specialist vehicle and discharged into site containers, Readyspread has an effective life of up to two working days. Its benefits include consistent quality, colour and cement content as well as improved productivity, reduced wastage and the removal of the need for site mixing equipment.



Wallite

RMC Mortars Wallite is a specially developed lightweight plaster backing coat which is light and easy to use yet possesses the well known benefits of strength and durability associated with dense plasters. Drying times are much reduced when Wallite is used allowing earlier decoration. Wallite's excellent resistance to water penetration means that it is also ideal in circumstances where condensation and mould growth may be a problem.

For a literature pack containing full details of these and other RMC Mortars' products just fill in the coupon and return it to: CV32 4JD. Tel: 0926 38611.

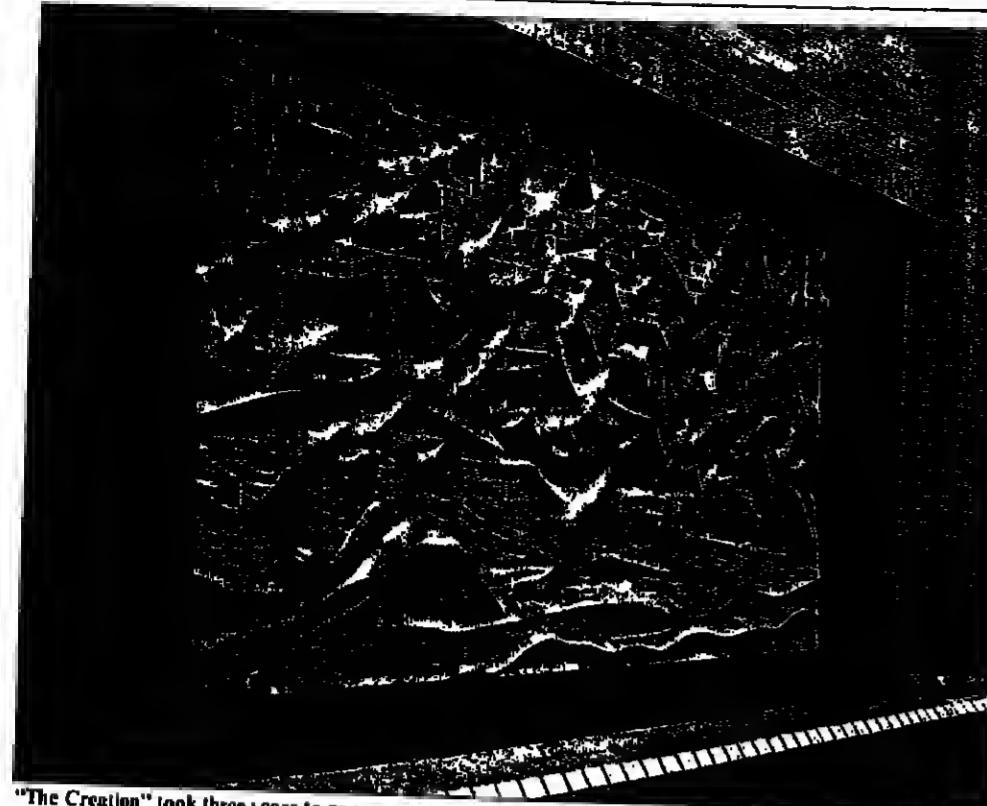
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Screed

To meet the increasing demand in economy and speed in modern construction, RMC Mortars offer ready-to-use floor screeding materials to your own individual specification. The method of manufacture and nature of the materials used ensure consistently high quality results on site. Ready-to-use floor screeds provide distinct benefits in terms of ease of use, economy and product quality and considerably enhance overall site efficiency.



"The Creation" took three years to carve.

And on the fifth year...

After five years' effort — two years of initial design and thought and three years of physical labour — Walter Ritchie's major brick sculpture, "The Creation", was unveiled during the official opening of the new Bristol Eye Hospital (architects Kendall Kingscott Partnership) on July 30.

The planning authority approved the architects' design for this energy-efficient building on condition that some elevational enrichment was added at pavement level. The architects did not wish to introduce another material to what was essentially a brick building and approached Ritchie to design a sculpture in brick.

Ritchie has considerable experience of this type of work, stretching back over several years (see pages 20-21). He chose for his subject "The Creation" — a progress of five panels, each 3.6m x 2.1m, suggested by an extract from the Romanes Lecture given by the 1st Viscount Samuel, lines from which are incorporated in contrasting brick lettering in one of the panels.

Because site working was impractical, the panels were laid and carved at Ritchie's studio in



Each part of the panel was carved separately and reassembled on site.

Kenilworth. The bricks were Ibstock Red Rustics, and RMC Mortars supplied the mortar and gave technical advice. Moving such large panels of unreinforced brickwork had no reassuring precedent and the success of the operation was a testimony to the strength of the mortar (1:1:4:3 mix with SBR) and the skill of the bricklayer, Len Aitken.

Special bricklaying techniques are required for sculpture. Bed faces of the bricks were painted with SBR to obtain additional bond and stop suction. Ritchie served his bricklayer with bricks so treated while still in a tacky condition. Care was taken to make the joints solid. Bedding and striking took place in one operation. Joints were kept fairly narrow and some tapping down was necessary.

During tipping, the mortar curves out and away from the underside of the brick and this can result in the formation of hair cracks which can prove a problem during carving. The joint must be struck immediately after bedding with an upward movement of the trowel to unite the mortar with the leading edge of the brick.

The panels were laid in header bond which, although not

particularly strong, allows the greater depth of carving without exposing longitudinal cross joints. In "The Creation", some of the carving was over 100mm deep.

After carving, four of the panels were divided into two by sawing along a horizontal weak lime joint, 1,200mm from the foot of the panel. Each part of the panel was handled separately (the lower section weighing in the region of 1.5 tonnes) and was reassembled on site. The

October 1984. The whole operation was masterminded by Ritchie himself and took about 25 hours of continuous effort, most of it in the rain.

When the whole sculpture was in place, it represented the largest brick sculpture in the world carved from fired bricks. All the panels are carved by hand, using the textures of punch, claw tool and flat chisel to create patterns as well as form. Ritchie worked from small sketches, which had been used to gain the client's approval. In this case he did not make his own full-size charcoal sketches, but started work immediately on the panels, perpetually modifying the designs as he worked.

Ritchie does not use assistants, but carries out all the work himself. As he puts it: "The process of sculpture should be a real need for facing bricks with a similar appearance to the old clamp or 'field' bricks from which their central areas had been built."

Alec Capstick of the York city architects department, talking about work in the conservation areas within the city walls in York, sums up his attitude in this way: "If I could have found clamps, I would have used them. Slop-moulded bricks gave me a brick at the right price and one that I felt

achieved the same effect as the old clamp bricks."

A much higher water content

is required for the production of slop-moulded bricks than other forms of brick — around 20 per



The completed work represents the largest brick sculpture in the world carved from fired bricks. Colour pictures supplied by RMC Mortars.

Innovations

BREAKING THE MOULD

SLOP-MOULDED bricks are not common in this country, although it is a conventional way of manufacturing bricks in Denmark where brickworks often have complementary lines making wire-cut bricks and slop-moulded bricks. There are only two British brickworks making genuine slop-moulded bricks, both owned by Redland Bricks and both owing their existence to Christopher Kellett, the chairman and managing director of Birtley Brick, who imported the method into this country a little over 10 years ago.

At that time Kellett was faced with a problem. As a small brickmaker, he believed it was necessary to have something different in order to ensure the survival of his business. He went out and scoured Europe for other brickmaking processes which would give Birtley bricks a distinctively different character. The outcome was the slop-moulding process in which, unlike other moulded bricks that use sand as a barrier between the clay and the mould, water is used to strike the brick and from the mould. But more of that later.

Slop-moulding was first introduced at the Birtley brickworks and almost immediately proved to be an outstanding success. This was because Kellett has succeeded in identifying a slot in the market which no one else filled and to which bricks with the special slop-moulded appearance were particularly well suited. In 1984 Redland introduced Birtley Brick, and today slop-moulding takes place at two brickworks in the country, at Birtley in the North-east and in Warwickshire at Redland's Arden Brickworks.

So what is a slop-moulded brick? In a nutshell, it is a brick which is struck from the mould by water, rather than by sand. This produces a brick with a different texture, lacking the sandy appearance of the more conventionally moulded brick. Only Danish machines are available for making bricks in this way and both Birtley and Arden plants have one machine each. Current production of slop-moulded bricks is 380,000 per week from Birtley and 250,000 from Arden.

Clay used at Birtley is Team Valley glacial silt which is dug twice a year and allowed to 'sour' for six months before use. After grinding it has a very fine texture which needs opening up by the addition of 'grog' in the form of concreting sand. This stops 'bloating' of the bricks.

To achieve the multi-colouring, coal slurry is added. To avoid seum formation, the clay mixture is dosed with barium carbonate, except in the case of clay for light buff brick production.

Alec Capstick of the York city architects department, talking about work in the conservation areas within the city walls in York, sums up his attitude in this way: "If I could have found clamps, I would have used them. Slop-moulded bricks gave me a brick at the right price and one that I felt

slop-moulded bricks were never part of the UK brick manufacturing tradition; yet now they are helping to conserve some of the most valuable and traditional examples of our building heritage. Paul Marsh reports.

base colour.

The drying process is slightly different and firing takes place in a Hoffman transverse arch kiln.

The distinctive texture of slop-moulded bricks is achieved by suction as the bricks pass through the moulds in the rotating table.

Redland Bricks reports that its 'green' bricks are fired in a flat-roofed Hoffman kiln with a firing temperature range from 650 to 1,050 degC. They are in the kiln for seven days, 48 hours of that time under firing temperatures. On removal from the kiln, the bricks are manually sorted.

The process at Arden is similar. The clay is a mixture of Keuper and Etruria marls, giving the bricks a salmon-pink



New block for St Peter's School, York by Building Design Partnership.

NORTHERN DOCKLANDS REVITALISED BY YORKSHIRE BRICK



Yorkshire
brick

DOCKLAND SCHEME HULL, REJUVENATION INNER CITY

TWENTY-FIVE years ago Stephen Joseph came to Newcastle-under-Lyme with an Arts Council grant to bring live theatre to North Staffordshire.

After four years with a fit-up stage in Newcastle's Municipal Hall, he set up his headquarters in a converted cinema in neighbouring Stoke-on-Trent. The interesting characteristic of the accommodation, which was created by architects Hollins, Jones, Oldacre & Partners, was that the cinema was transformed into a theatre-in-the-round. One of the reasons for choosing this form was that it was particularly appropriate to touring companies — the Stoke company had begun as a company touring throughout England to theatre towns.

Clearly, Joseph's venture received a positive local response and the company, now directed by his former manager,

CURTAIN RAISER

North Staffordshire isn't known for being at the throbbing heart of theatrical life. Yet it is here that one of the most innovative theatre designs to be produced in the UK in recent years has opened its doors.

Peter Cheeseman, began to look round for a site for a permanent and purpose-built home. It took a long time to find a suitable location, and Joseph didn't live to see the realisation of his dream. Cheeseman continued the project with the same zeal and today is the director of the new Victoria Theatre, which opened in August of this year with a production of a play by local dramatist Arthur Berry.

Once more the architects for the theatre were Hollins, Jones, Oldacre & Partners and the two

partners involved with the scheme, John Sambrook and Fred Oakden, maintain that the Victoria Theatre is the first purpose-built theatre-in-the-round in Europe, all others being conversions.

The architects had a unique opportunity to study theatre-in-the-round at first hand and try out ideas when they converted the cinema 25 years before. Their new theatre in many ways has been the flowering of years of experience and considerable trial and error.

Victoria Theatre seats an audience of 600, 40 per cent more than the converted cinema. It occupies a paddock adjacent to Stoneyfield, a large Victorian house now used as the office for an insurance company. It is set towards the front of the site, using the rest of the space for a wildlife conservation area. Many mature trees still grow there, most of the major ones in a band across the site. The theatre occupies one side of the row of trees with the wildlife conservation area and car park

on the other. Sambrook and Oakden chose brick as the predominant material for their design, because of its natural appearance. For the same reason they chose a brick (Redland Ashdown Peversey multi-coloured stock brick) which would simulate a handmade appearance, most suited to the theatre's surroundings.

Brick plays an important part in the design with 13 different special shaped bricks being used. These include nearly 2,000 purpose-made sill bricks to the architect's specification, as well as over 7,500 BS specials. In addition, 21,000 Ashdown Peversey pavers and 8,600 Otterham rough stock pavers are used in the landscaping around the building. Inside the theatre brick walls surround most of the public areas — foyers, bars and restaurant. By contrast the drum, within which the circular auditorium and acting areas are set, is constructed in rugged, board-marked concrete.

Intimacy is the feature of the architects' design. No person in the audience is more than 8m from the acting area. Maintaining a human scale has been a continuous concern of

the architects. When asked what major design problems had to be overcome, the architects listed:

- getting the scale right, internally and externally;
- and, finally, ensuring the acoustics were right, particularly with regard to the exclusion of external noise and sound from the air-conditioning equipment.

When the lights came on on

the first production staged at the Victoria Theatre, Stoke-on-Trent, it was about 2½ years after work had commenced on site. The building is an unexpected delight in an area which is not renowned for its architectural gems, and much of its quality derives from a skillful use of brickwork.

● servicing, with all the air-conditioning equipment being contained in the low, natural slate-covered pitched roofs;

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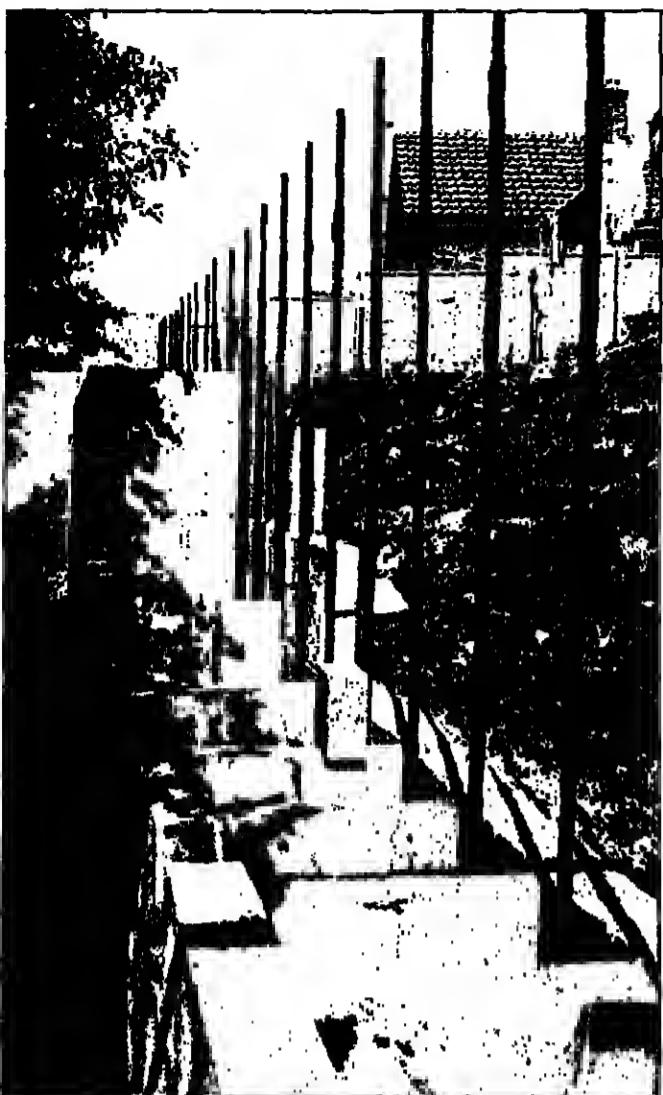
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Structural brickwork



The concrete blockwork wall under construction, showing the steel strengthening rods and wall's cellular structure.

Quiet revolution

John Wood reports on a new way to strengthen brick walls.

THE revolutionary method of strengthening brick walls developed by consulting engineer Bill Curtin (RD May 23) has been used in a concrete blockwork wall for the first time.

Curtin found a way of post-tensioning prestressed diaphragm brick walls using steel rods which gave a horizontal loading strength 300 times greater than traditional cavity walls.

Now an earth retaining wall 90m long and 3m high has been built on a site in Radcliffe-on-Trent in Nottinghamshire using concrete blockwork.

The wall was needed to allow gardens on the hillside housing development to be levelled off, but the builder found a con-

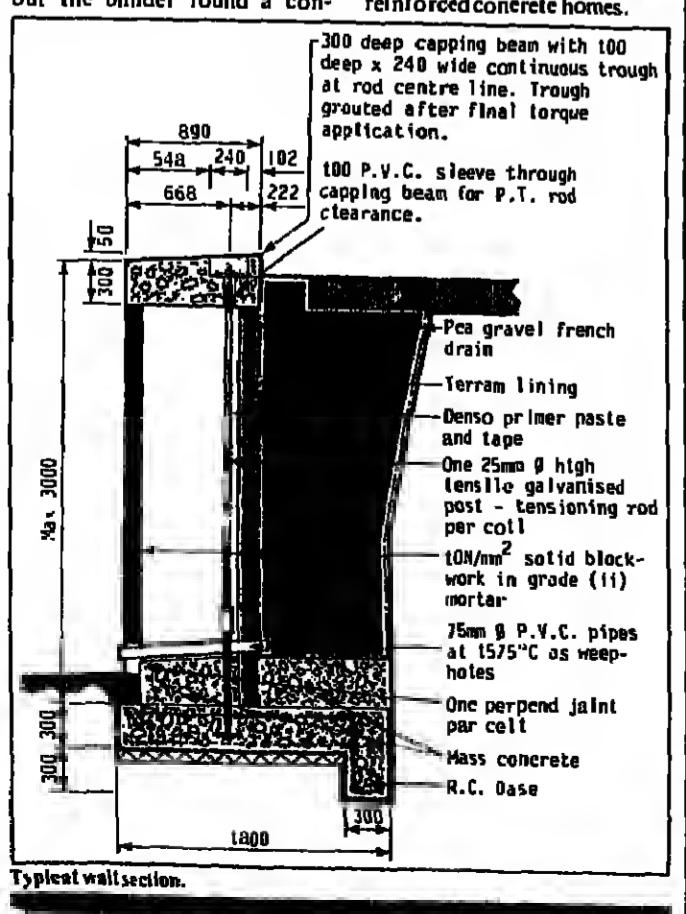
ventional reinforced concrete retaining wall would cost £4,000 per residence.

The blockwork wall was two-thirds the cost and the company, used to traditional house-building methods, was able to build it itself.

John Beck, a partner in Curtin's Consulting Engineers, will deliver a talk about the wall at the Institution of Civil Engineers during a symposium titled "Practical design of masonry structures" on September 23-24.

Earlier in the two-day event, Curtin will discuss the research into the initial post-tensioned prestressed diaphragm brick wall.

Curtin has also been leading the way in the repair of precast reinforced concrete homes.



Getting the message across

STRUCTURAL brickwork was at its peak at the beginning of the Victorian era at a time when many of the great railway viaducts, retaining walls, bridges, sewers and docks were constructed. There followed a rapid decline caused by the advent of steel and reinforced concrete.

With these "new" materials' superior tensile strength at their disposal, the engineer of the day relegated brickwork to the status of a forgotten structural material, useful only for domestic buildings and as a cosmetic to face-up engineer-designed structures. Its decline has been so rapid that today very few graduate engineers receive any training in its structural use. When they leave university and go into practice, they are therefore likely to have a strong bias towards materials with which they are familiar, with little or no appreciation of the merits of structural brickwork.

Peter Lombard, a chartered structural engineer working for Ibstock Building Products, explains why structural brickwork is far from having had its day.

No engineer can retain all that he is taught in his academic year. He relies on good quality, readable textbooks. Many hundreds of such books have been published on concrete and steel — only a very few on brickwork.

Why, you may ask, should brickwork be brought back into prominence? Off the top of my head I can think of 10 good reasons.

• Brickwork has an unrivalled record of long-term durability. It is, after all, the second oldest building material in the world.

• If properly put together initially, it requires little or no maintenance, unlike its rivals.

• It is extremely robust and, if damaged, can be easily repaired. A lorry can run into the gable end of the building, punch a hole right through the brick wall, and the building will still remain

standing, because brickwork "arches". It must be the best structural material to sustain accidental damage, yet still retain its integrity.

• Steel and concrete frames in multi-storey buildings concentrate the loads at individual points around the building, necessitating large individual reinforced concrete bases, very often standing on expensive concrete or steel piles.

• Brickwork offers the designer the freedom to use curved walls without incurring the excessive cost of curved formwork. Brick retaining walls are almost invariably less expensive than reinforced concrete ones, particularly as these are often in brickwork.

• Brick structures, surprising as it may seem, are more economic to construct, provided that the building is suited to the material. Brickwork lends itself to use for buildings with repetitive floor plans.

• Diaphragm and fin walls are

proven economic solutions for sports halls, swimming pools etc — in fact, for most buildings requiring large, open areas, free from obstructions.

These are some of the good reasons for using structural brickwork. What is now needed is the impetus to do so. This could be provided by a new generation of brickwork-oriented engineers.

With the introduction of BS 5628: Part 1 and Part 2 (the first dealing with unreinforced brickwork, the latter with reinforced brickwork) the engineer now has two codes of practice with which to work, both written in the same language as their steel and concrete counterparts.

Brickwork is very like concrete in one respect. Without reinforcement both are excellent in compression and useless in tension.

Only the addition of reinforcement to concrete gives it its engineering magnetism. Reinforcement can also easily be added to brickwork.

Bell's view is reflected by the

ARMITAGE'S head office at Robin Hood, below the embankment of the upper reaches of the M1 just south of Leeds, is an unexpected example of exciting structural and architectural flair.

Like the recently completed offices at Accrington for another company in the Armitage Group, this is a tour de force of structural brickwork using techniques — such as reinforced brick beams and post-tensioned brickwork — which have been the all-consuming passion of Stuart Bell, Armitage's architect since he joined the company in 1978.

Completed earlier this year, the Accrington office block is a two-storey building, designed by Fletcher, Ross & Hickling of Leeds in collaboration with Bell.

The structural engineers were Bradshaw, Buckton & Tonge.

Some of the structural brick features included in the design are a 550mm curved diaphragm, a reinforced brick balcony beam in the entrance foyer and other buildings up and down the country. Many of Armitage's early essays in structural brickwork took place in farm buildings — its first post-tensioned diaphragm wall, for instance, was constructed for a farm building in Norfolk.

Armitage has an impressive list of firsts to its credit including:

- first post-tensioned diaphragm wall farm building;
- first reinforced brick beam office building; and
- first reinforced pocket retaining wall.

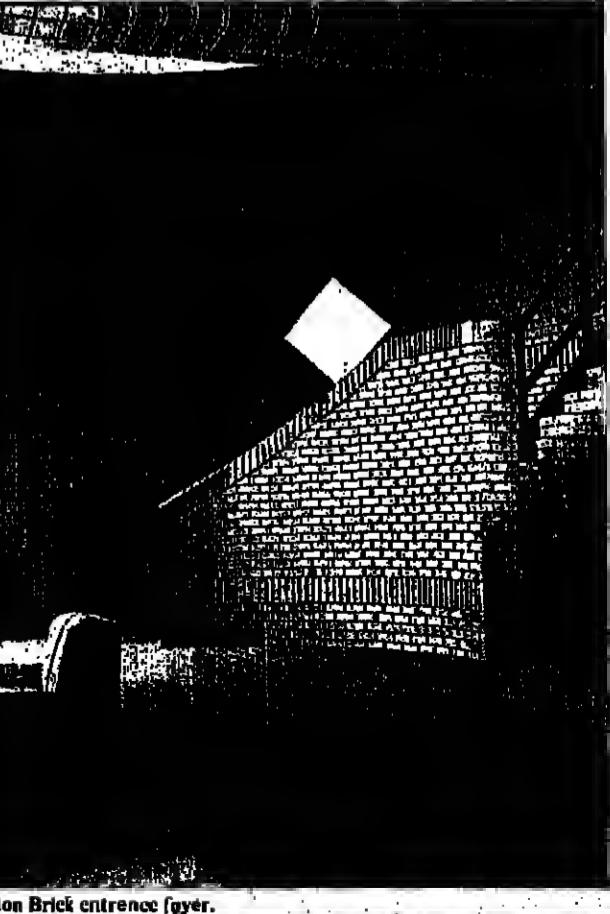
With this track record, it is hardly surprising that Armitage sees itself as something of an expert in the field and is busily spreading the word with in-house lectures and a video library service for architects and engineers.

In various ways it is chipping away at the widely held belief

that brick is no more than an environmentally pleasing facing material and that to use brickwork as a structural medium must be expensive. It is this latter impression — that laying brick upon brick is a slow way to build and therefore expensive — that is the most difficult myth to overcome. And yet Bell will tell you that this belief is very wrong.

Loadbearing brick structures spread their loads more evenly on the ground than framed structures and therefore often result in reduced foundation costs. In addition, Armitage maintains that loadbearing brick construction can be quicker than full height brickwork, plus a steel frame. Also, where brick is used to clad reinforced concrete beams or retaining walls, an all-brick solution (reinforced brick beams or reinforced pocket brick retaining walls) is invariably the most cost-effective.

With the tide of design opinion apparently starting to turn in favour of structural brickwork, Stuart Bell is starting to look for new challenges to overcome. "We're just in a stream at the moment," he says, "but the aream is leading to a lake. The next hurdle will be the three- or four-storey office block!"



THE TIDE IS TURNING

Practising what they preach

George Armitage & Sons offers a distinctive service which, says Stuart Bell, head of Armitage's technical services department, is set to "revolutionise brickwork". Paul Marsh decided to find out more for himself.

company for which he works, Armitage, possibly because of the nature of the bricks it produces — dense and exceptionally strong bricks from three brickfields in Yorkshire and one in Lancashire — is the champion of structural brickwork. As Bell points out, a whole generation of architects and engineers has been brought up to think of brickwork as merely facing material.

Armitage has demonstrated its faith in the doctrine it preaches both at its offices at Robin Hood, more recently, at its new office building at the Accrington brickworks. Both

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Let your ideas surface.



At long last, paved areas are receiving the attention they deserve as planners and architects recognise the extra dimension well conceived treatments can add to all manner of projects.

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Pedestrian areas are, of course, an obvious application for Quikpave. But you may consider much wider possibilities.

Building a roadway to handle up to 2,500 commercial vehicles per day is well within the product's performance. Which means projects such as vehicle loading areas, container terminals, busy garage forecourts and bus lanes all present new opportunities for Quikpave ideas to surface.

Got the idea?

For further information use the reader response service or contact RBS Brooklyns, Marketing Department, Roadstone House, 30 Waterloo Road, Wolverhampton, West Midlands WV1 4RU. Telephone Wolverhampton (0902) 22411.

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Structures

SLIM STANCES

The Stoke Garden Festival has provided an opportunity to reassess the Slim method of domestic-scale building. Paul Marsh reports.

AT the height of the controversy between traditional brick-and-block and timber-frame methods of house construction, an entirely original method of domestic-scale building was launched by what was then called the British Ceramic Research Association (now operating under the title, Ceram Research).

The Single Leaf Insulated Masonry method (or Slim for short) never really attracted the imagination of designers and developers and quickly slipped from the limelight. But with this year's Stoke Garden Festival, there has been a new opportunity to reassess Slim in the form of the Solid Fuel Advisory Service's house on the exhibition site.

Slim, the brainchild which emerged from Ceram Research's interest in structural brickwork, was largely developed by its research architect, Alan Durose. He appreciated that the innate strength of the brick outer skin of the brick-and-block, or timber-frame, methods of construction was under-used. He argued that if a single skin of brickwork could be adequately insulated and the wall could be shown to resist water penetration, there was nothing to stop a well designed single skin (102.5mm) brick structure being structurally adequate for domestic-scale building.

The justification of this contention arose from many years of strength testing the brickwork of all types in Ceram Research's sophisticated testing laboratories.

If the Slim concept could be

shown to work in other respects, then, Durose argued, the method could yield important building cost savings — estimated to be in the region of 5 per cent.

Following initial laboratory tests, a single-storey extension to a house was constructed using Slim. This was monitored in use and found to perform successfully in respect of weather resistance and thermal insulation. Development continued and before long the method had been extended to two storeys and the time had come for a full, two-storey prototype. In 1981 Ceram Research built a pair of semi-detached houses on an exposed hillside outside Stoke-on-Trent. After wind load tests, one of the houses was sold and the other was used by Ceram Research to carry out two years of concentrated monitoring of thermal performance and resistance to rain penetration. At the end of this time, during which the house had been shown to have performed perfectly, it too was sold. It is understood that the owners of both of these properties are entirely satisfied with their purchases.

Ceram Research published a Design guide for Slim (cost £16) and invited for builders and developers to show an interest in the method. Unfortunately, so far as is known, only one developer has ever opted to use Slim. This was a Southend builder who started to construct a site of Slim houses with the advice and assistance of the Brick Development Association and Ceram Research. After three houses had been constructed, he reverted to more conventional methods of construction. The reasons are not entirely clear. Certainly the time taken to learn the new method slowed down the builder's productivity on site, although he gave up just when he had got to grips with the method. In addition he failed to realise a cost saving — also due to the learning process he was undergoing.

At the time there was some adverse press comment, most of which was without foundation.

Probably one of the basic drawbacks of Slim is that some of its details are unfamiliar, they generate feelings of uncertainty. In effect Slim consists of a

102.5mm skin of brickwork backed by a 50mm thickness of Styrofoam, closed-cell polystyrene insulation and finished internally with plasterboard, which breaks joint with the Styrofoam boards.

Unevenness at the rear of the brickwork and the thickness of the adhesive tabs produce a notional cavity down which penetrating water drains, to be directed outwards at floor levels and openings by DPCs similar to conventional cavity trays.

Advantages offered by Slim include:

- Excellent insulation. It is relatively easy to achieve a U-value of 0.45 which it seems likely will become the mandatory Building Regulation value in the not too distant future. Using conventional methods of construction, this lower U-value could mean thicker walls. Small increases in the insulation thickness enable even lower values to be achieved.

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- Ease of supervision. It is easier to check the standard of workmanship than in a cavity wall. Cavity trays can be seen to be installed correctly before the Styrofoam is positioned.

- Speedy weather protection. The Styrofoam and drylining are both installed after the roof has been put on and the building is weather-tight.

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As Ian Warriner of SFAS puts it: "We were looking for a viable alternative to timber frame as practised in this country. We believe that Slim is a much better pair of semi-detached houses."

The latter advantage no doubt attracted the Solid Fuel Advisory Service to Slim, when it was looking round for a method of construction for its Stoke Garden Festival showhouse. There were other reasons too. SFAS had been involved in Ceram Research's prototype pair of semi-detached houses.

Now is the time to reassess Slim. As Alan Durose sees it, "Slim's problems in the past have been commercial rather than technical." It makes full use of the strength of brickwork, a feature that no other method can boast.

In fact, with insulation so near the inside surface of the external walls and heavyweight internal thermal mass, Slim succeeds in getting the best of both worlds.

The SFAS house at the festival has proved a great success and the builder, A V Shenton of Normacol, Stoke-on-Trent, has expressed an interest in buying the property.

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Buildings

STRUCTURAL AWARDS

Paul Marsh gives details of the most successful schemes in this year's Brick Development Association Structural Brickwork Awards.



Detail view of window and ceiling junction.



The diaphragm wall construction recalls the past but remains contemporary.

Joint winner

Locomotive shed: Preston Dock Redevelopment: Because of the redevelopment of the former Dock Estate at Preston to provide opportunities for residential, leisure, retail and commercial building, the dock railway system had to be relocated. This system serves the existing industrial users in the area. As part of this relocation, a new engine shed has been built to house the maintenance facilities required by the three dock locomotives — Energy, Enterprise and Progress.

This gave architects Brock Carmichael Associates the opportunity to design for their clients, the Borough of Preston, a functional brick building which, according to the award assessors, provided a fusion of architectural and structural excellence.

Operational considerations determined the position of the new building, which fortuitously linked with a flood protection scheme that eventually will form a heavily landscaped riverside walk. This renders the whole area visually sensitive and, as a result, it was the client's wish that the locomotive shed should set a high standard for subsequent development in the area.

The architects believed that a building like an engine shed,

Bricks were supplied to the project by Blockleys and Lumley Brickworks.



Semi-circular gable feature around the extract outlet.



Traditional brick and slate reflect the shed's lineage.



According to the assessors the shed provided a fusion of architectural and structural excellence.

Joint winner

Norwich Magistrates Courts and Probation Offices: Conservation issues played a major role in the design of the new Norwich Magistrates' Court building, designed under the direction of the county architect, J.F. Tucker, by project architect Robert Goodearl.

Situated adjacent to the cathedral and an early 19th century mill (now Jarrold's Printing Works), the new court building had to be handled with great sensitivity. In addition, there was a planning requirement for an existing three-storey house on the site to be retained and incorporated into the design. This now forms part of the probation office. Archaeological remains of a Norman house have also been incorporated into a specially constructed basement.

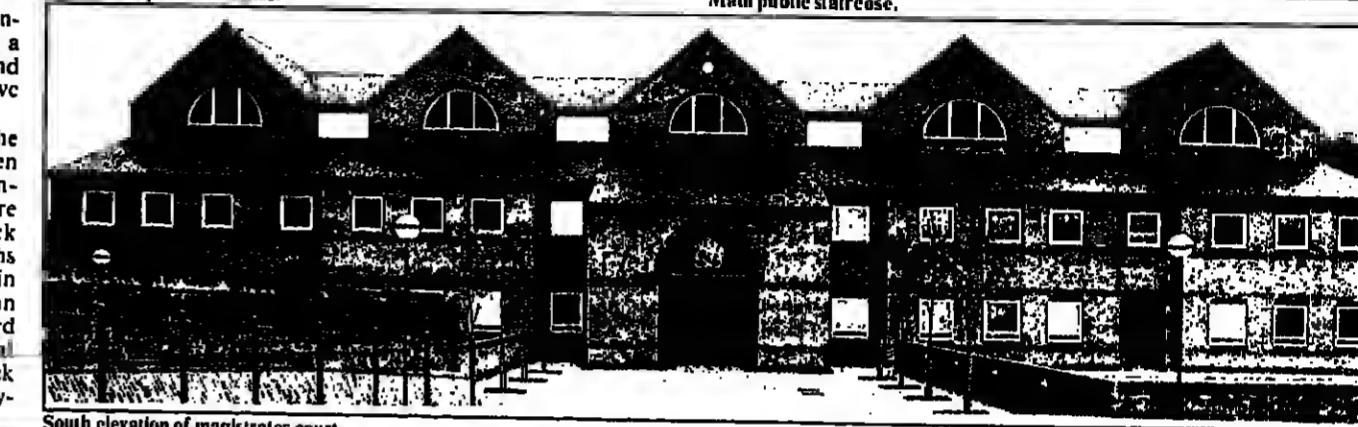
Housing five adult and two juvenile and domestic courts, with all the necessary ancillary accommodation, this must be a rare example this century of a

Architectural constraints included the need to produce a low-maintenance building and one which was likely to improve in appearance with age. Structural engineers for the scheme are Eagling & Allen Partnership, Redland Tonbridge. Wealden Stocks were used for general facing brick areas, with heads, sills, plinths and dentil courses picked out in Butterley Lane End Jacobean Blue Brown bricks in standard and special shapes. All internal brickwork is in London Brick Company common bricks, keyed to receive plaster.

Buildings



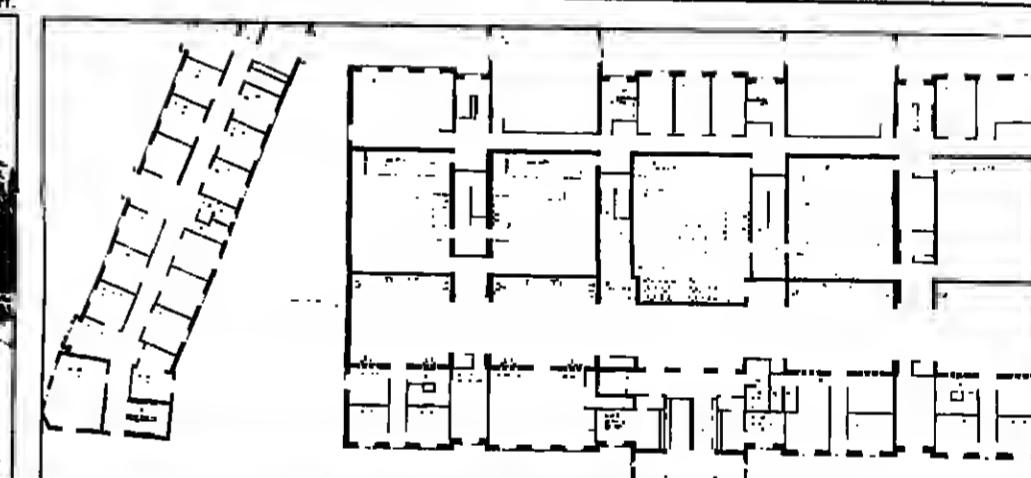
Entrance to probation office.



South elevation of magistrates court.



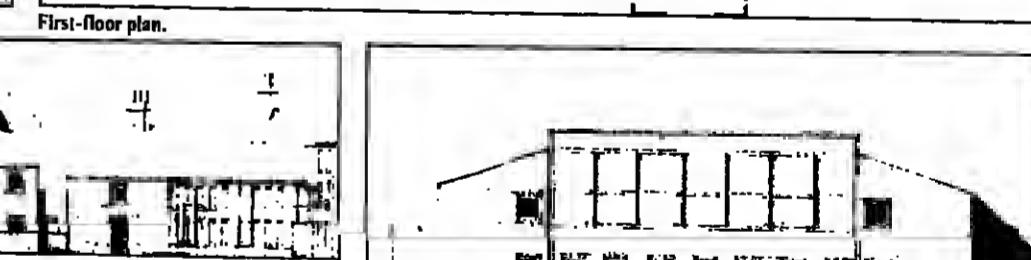
Probation office.



First-floor plan.



Perspective view from riverside walk.



View from Crown Court.



Interior view.

Interior view.

Highly commended

Osborn Memorial Halls, Boscombe, Bournemouth: Major David Blackwell, the architect for the Salvation Army, in his design for the 600-seat main hall, broke up the long flanking walls with brick piers. Because of site restrictions and the need to permit maximum natural daylight to enter the hall, these had to be of limited size.

Using the most up-to-date post-tensioning know-how, structural engineer W.G. Clark & Partners developed an economic structure based on reinforcing the brick piers with 20mm diameter

post-tensioned rods cast into the strip footings passing through the centre of the piers.

They act as propped cantilevers and carry cranked roof beams which span the hall. Braced roof transfers the wind loads to the brick piers.

Major Blackwell's design included, as well as subsidiary halls and community rooms. Externally it was intended to reflect the scale of the property surrounding the site.

Resident Fire Station: All-brick construction used in this new fire station in Northamptonshire (architect John Gammans, director of the department of land and buildings, Northampton CC; engineers BMMK Cotterell) is believed to have shown substantial cost savings when compared with more usual framing methods that might have been considered for this type of building.

Many load-bearing structures depend on a cellular arrangement of walls and their interaction with the floors and roof to provide stability.

Commended

Banbury Inner Relief Roads, Stage 1, East-West Link Road: Information obtained from recent surveys on this section of road and the design of the underpass walls was the work of Oxfordshire County Council county surveyors

(and engineer) with the assistance of brickmakers George Armitage & Sons, consulting engineers Bradshaw Buckton & Tonge, and Dr G. Edgell of Ceram Research.

The walls were constructed of pocket-type brickwork, using high yield steel reinforcement, concentrated in vertical pockets formed in the tension face of the brickwork.

These pockets are then filled with concrete. Additional mild steel shear reinforcement is also fixed in the pockets.

Bricks were supplied to this project by Butterley

Commended

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Development

GROWING PLANTS

Brick producing plant is still attracting corporate funding. Paul Marsh looks at developments in production.

INVESTMENT by brick-makers in new plant has been running at a very high level for the last few years. This trend has continued in a slightly reduced form this year.

Among the developments which have been announced are a number of investments made by Butterley Brick. These include a £1 million development at its Blaby works, mainly

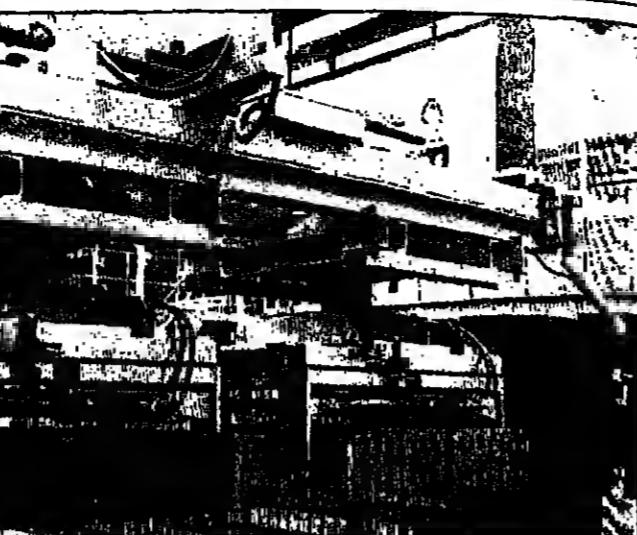
comprising a new kiln, built to a design patented by the Butterley Group.

Its construction involved excavation to a depth of 8.2m over the site of the new kiln, because of the extremely poor ground conditions in the area. The kiln, which is 51m long, was constructed using several of Butterley's own products, such as 140,000 engineering bricks from its Waingroves works and refractory bricks from its Black-

ley plant at Elland.

The new kiln will allow the Blaby works to double its output of hand-pressed bricks, firing in excess of 400,000 bricks and special products per week. Future investment at Blaby will include the installation of high capacity dryers and an extrusion line. New moulding departments are also planned.

At Butterley's Waingroves plant a £500,000 investment has included the installation of



Automatic Lingi brick setting machine in Baggeridge Brick's new Hartlebury plant.



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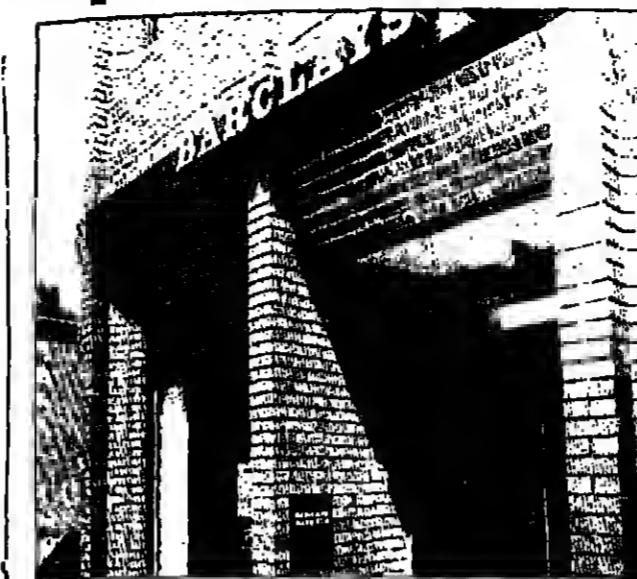


Brick kiln.



Brick kiln.

Slip brick stick-up



CONCRETE-encased floor beams and columns of the new branch of Barclays Bank at Eastleigh, Hampshire, have been completely covered with 13,500 brick slips and cant bricks. The slips were stuck in place using SBD Epoxy Plus Putty and cant bricks, forming the corbelling, were fixed with stainless steel ties and a thick bed of Epoxy Plus Mortar. All necessary soft joints were incorporated to cater for building movement. **Steelley**

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Third gold medal



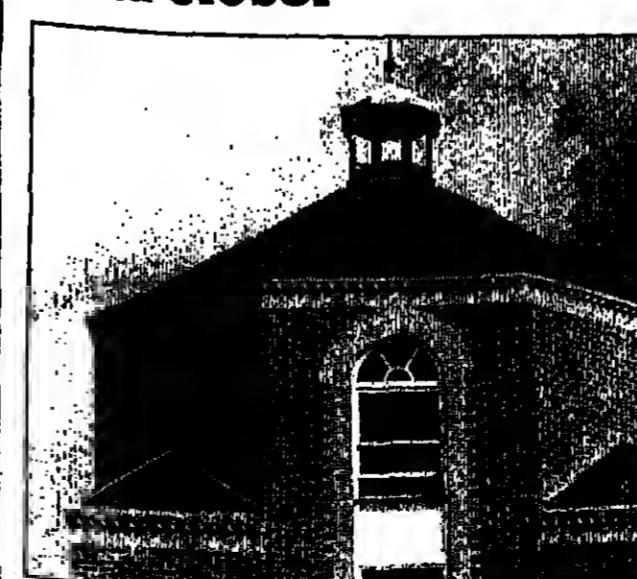
At the Chelsea Flower Show this year, Woolworth, for the third year running, earned off one of the coveted gold medals. Also for the third year, designer David Stevens chose Redland bricks for his garden.

In all some 6,000 Birley Old English slop-moulded bricks were used in the New Dimension garden to create the retaining walls for the pools and flower beds. They

contrasted well with the pre-cast paving and abundant greenery.

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Vista closer



IN the true Palladian tradition, the lower of the new 4,200sq m office development in Taunton for Clowes and Development Company closes the vista down the High Street. The architects for the development, the Bruges Tozer Partnership, use the tower to link the two terrace wings of the scheme. General wall surfaces are faced with handmade Swansage bricks, while the yellow bricks used to pick out the details of the elevation are from Ibstock Building Products.

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Products in practice

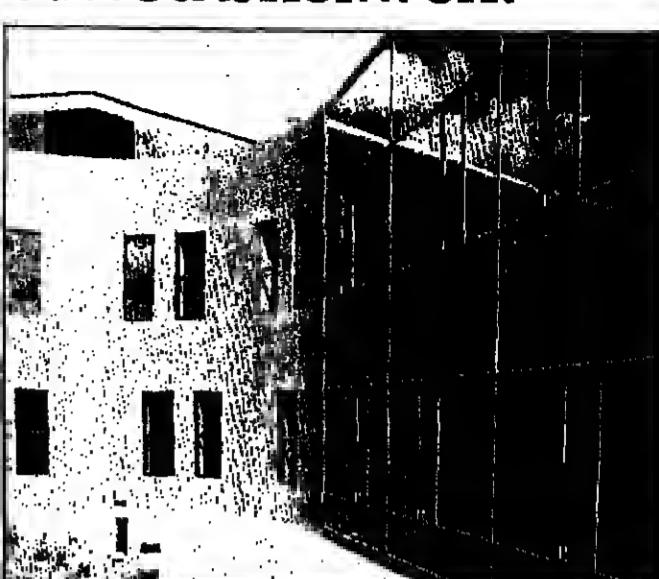
Herb garden pavers



HOLLINGTON Nurseries' garden at this year's Chelsea Flower Show was a formal culinary herb garden, designed by Simon Hopkinson. He used Ashdown Crowborough Flex-pavers from Redland Brick to construct the paths which separated the various garden areas, creating diamond-shaped herb beds. The subtle colours of the multi-coloured pavers blended well with the leafy herb plants.

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Curved brickwork



ACCRINGTON Brick & Tile's new office block is designed to show off some of the capabilities of structural brickwork, using products from the George Armitage Group product range. Particular features of the design (architects: Fletcher, Ross & Hickling of Leeds) is the curved brick walls, contrasting with the Don Reynolds glazed curtain walls, designed to read flush with the brickwork. The glazing

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BUILD BY THE BOOK WITH CELCON



One of the boring facts about Celcon is that you can do just that. Using a hand drill, or just an old-fashioned brace and bit, neat round holes can quickly be drilled through the full thickness of either Standard or Solar material.



The answer is the consistent bubbly structure. There are no hard lumps in Celcon. The bubbles are so small that they never become full of water. This gives rise to another boring fact: the blocks are almost waterproof.

Waterproof doesn't mean vapour-proof. This means that provided it's warmer on the inside of your Celcon built house than on the outside, moisture laden air will constantly travel outward. The block and the wall can breathe.

Breathing is an important thing to be able to do when a fire breaks out. With 100mm of Celcon between you and a conflagration, four hours could elapse before the air got too hot for your lungs to handle.

There is no magic in this; it's the simple thing that happens when you combine good thermal insulation with non-combustible ingredients.

Good thermal insulation is something the Building Regulations demand. The 0.6 standard can still be met by a real cavity brick wall provided the inner leaf is of 125mm Celcon Solar.

The fact that Celcon can be cut with a saw means that messy bodge which usually passes for a reveal at window

openings can neatly be built with clean-cut Celcon fractions. Light though it is Celcon Solar has a strength of 2.8 Newtons per square millimetre. Celcon Standard exceeds 4 Newtons per square millimetre and Celcon High Strength, 7 Newtons per square millimetre. In practice this means you can build a block of three-storey flats entirely from Celcon, including the walls below dpc.

Celcon blocks are made in big batches. They are loaded and unloaded mechanically in 1/2 cubic metre units. This makes for very fast, safe handling.

For the stockist and his small job customers, Celcon is shrink wrapped into small easily fork-lifted Handi-packs. The blocks are selected for these packs and totally enclosed in the factory so they come out dry and undamaged when the bricklayer unwraps them.

These are just a few of the useful bits of information you'll find in the Celcon brochure. A copy of the book is yours for the asking. Even when you've got it, don't forget the Celcon representative is always nearby ready with his fund of knowledge and practical experience or to take your problem to the Celcon technical service.

Clip the coupon, then you will have your own book of knowledge on Celcon.

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Products

Calcium silicate solution



MALLING Red facing bricks in Ryans' Village range were used in this Georgian-style detached house, one of several on a development in Benfleet, built by Brian Bennett. Construction, Ryans produces calcium silicate bricks in three ranges: smooth Sandline, lightly textured Flintline and the smooth or textured Village range. Several facings from the latter range were used on the Benfleet development.

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Special cladding fixings



BAKERS Hall in the City of London has had a chequered career since the original building was destroyed during the Great Fire of London. Rebuilt in 1700, bombed in the Second World War and rebuilt in 1960, the present building has just undergone major refurbishment which included the replacement of the pre-cast concrete claddings with brickwork. A new form of fixing had to be devised to support the brick and block cavity wall at each existing column. Fixings specialist Harris & Edgar came up with a solution which provided the right degree of tolerance to overcome variations in the existing concrete structure.

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Inside arch story



BECAUSE the brick arched windows of the new Crest Hotel (architects Brierly Leckhemy Keighley Groom) were precision made, it was important that the arch reveals were accurate in shape and size. As a result, Truline Building Products' arch frames were chosen. These are said to be the only arch frames on the market with solid bead edges, which provide a guide for the plasterer to obtain the exact size of arch reveal. They are manufactured of galvanised and stainless steel for interior or exterior use.

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Brick reinforcement

SPIRO-BAR masonry reinforcement from Rom is manufactured from stainless steel strip (type 304 S21 to BS 1449, 1983) twisted to form a helix. This, it is claimed, has a longer life than galvanised or plastic coated products. It is supplied in 3m lengths to be cut on site, each length weighing 0.18kg. The yield stress of the strip is 460 N/mm² its cross-sectional area is 7.6mm² and typical bond stress with designation (i) and (ii) mortars is 1.5N/mm².

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New products

Dragwire pavers

PEAKSTONE Bricks has announced the introduction of its engineering quality concrete brick with a minimum crushing strength of 40N/mm² and a maximum water absorption of 7 per cent. This brick is recognised by the new BS 5628: Part 3 as suitable for the severest applications in drainage and sewerage.

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Concrete bricks

PEAKSTONE Bricks has switched to the new factory of its subsidiary company, Acerington Brick & Tile. These pavers have a dragwire texture and are 200mm x 100mm x 50mm with square or chamfered arrises, depending whether they are to be laid in mortar on a sub-base of concrete or to be set on a bed of sand.

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Ready-to-use mortar

SUPPLIES in a range of 20 colours (with up to six shades in each), Steelley Brick & Tile's new ready-to-use sand-lime mortar remains useable for nearly five times as long as conventional mortars. Sealed in 30kg bags, which if left unopened can be used for up to seven days after delivery, the mortar conforms to BS 4721 and reduces site wastage to a minimum.

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Keuper marl facings

ALL Nottingham Brick's keuper marl facing bricks have been collected together under the range name of Merica. The new Oxton series has been added to existing bricks. The Oxton Red and Red Multi both have a lightly folded texture. The Oakham Mixture with its blend of colours has a traditional appearance and finally there is the Georgian Multi Rustic.

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THE HARDEST BRICK THE SOFTEST BLOCK

SPIT UNI

M6-M12 Universal anchor especially designed for weak and friable substrates.



SPIT BLOC

M4, M6, M8

Non expanding hard nylon anchor for light loads. Pre threaded M4, 6 & 8.



M6-M20

All steel through fixing sleeve anchor. Hexagon nut or screw head finishes. Wide range of lengths in each diameter.



SPIT MAXI

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Chemical anchor for all types of loading. Especially resistant to vibration.

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Interior Supplement

will be published on

October 31st

Material for consideration should

reach us by

September 22.

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Building Design

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Coloured mortars by Tilcon

The gift of writing great music has given untold and lasting pleasure to countless thousands. It is timeless.

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New colours and textures

GEORGE Armitage & Sons Ltd introduced variations to its facing brick ranges. Its red and brown Ebor smooth facings are now complemented by a smooth buff and a smooth buff multi, with varied hues of reds, browns and blues in the Oerwett Multi facing range are now available with a dragwire surface texture. The new Armitage Oulton Mixture has the appearance of a stock brick, but with the strength and durability associated with Armitage bricks.

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BRICKS AND BLOCKS

CELCON Enquiry no 217

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Page 28 SEVEN VALLEY BRICK CO LTD Enquiry no 213

Page 22 BTEETLEY BRICK LIMITED Enquiry no 202

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FIXING SYSTEMS

HALFEN LIMITED Enquiry no 220

Page 26 SPIT FIXINGS Enquiry no 219

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INSULATION SYSTEMS

TINSLEY BUILDING PRODUCTS LTD Enquiry no 210

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MORTARS

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PAVING

BAYER UK LIMITED Enquiry no 208

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WALL EXTENSION SYSTEMS

ALLMAT LTD

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New products

Surface sealer

THOROGLAZE clear acrylic emulsion from Thoro System Products can be used to protect brickwork. Applied by a low-pressure spray or brush, it quickly dries to form a clear transparent film that binds together loose surface particles. It enhances the texture of brickwork and protects it from dirt pick-up, air pollution and general erosion. Treated surfaces are easy to clean and resistant to water penetration, but the film does not inhibit water vapour passing out of the structure.

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Two new stocks

AUGMENTING its range of stock bricks, Redland Brick has introduced two new facings — the Ashdown Rotherfield Multicoloured stock and the Ashdown Mayfield Multicoloured stock. Both bricks are of the FL quality classification — the Rotherfield facing complements the traditional Crowborough stock, blending with most other materials and environments, and the Mayfield has many of the characteristics of the Pevsner family, in sympathy with much of Britain's red tradition.

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West Midland bricks

REDLAND has announced that two new facing bricks of FL quality are being produced by its new Stourbridge factory — the Evesham Textured Buff and the Stratford Sandcast Red. The former has a drag-faced finish and deep, uneven tones appropriate to work in conservation areas; the latter has been developed for use in the Midlands and the North of England where they will blend well with the older type of red bricks.

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Concrete commons



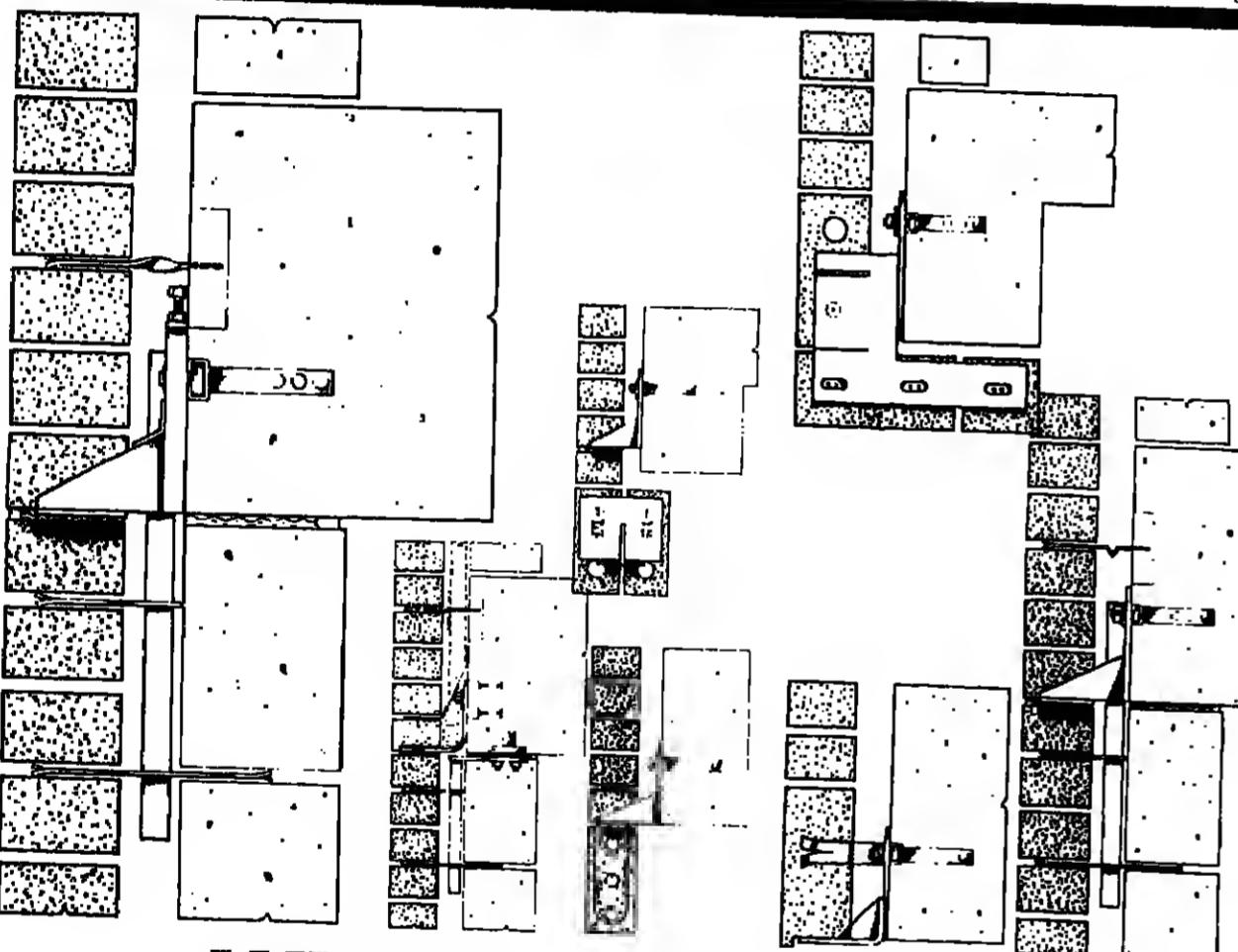
EDENHALL has launched a range of concrete common bricks from its newly commissioned plant in West Thurrock, Essex. These come in classes three, four and five and are claimed to be totally frost resistant. They can be used in bed-and-drip situations, even where the ground conditions are extremely severe. Selected quality bricks can be supplied for surfaced work and sulphate resistant cement can be used in the manufacture if required.

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Handmade look-alike



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Wherever you want to hang your bricks Halfen can fix it

When it comes to fixing brickwork, Halfen can give you a choice of safe, secure and economical answers. Because Halfen have the products and expertise to meet your brickwork fixing needs.

Halfen's range of cast-in channel inserts and accessories meets all current requirements. Channels cater for loadings up to 35KN, whilst standard T-head bolts come in sizes up to M30.

To help you match performance with economy, you can specify galvanised mild steel, or two grades of stainless steel — hot or cold rolled. Whatever you specify,

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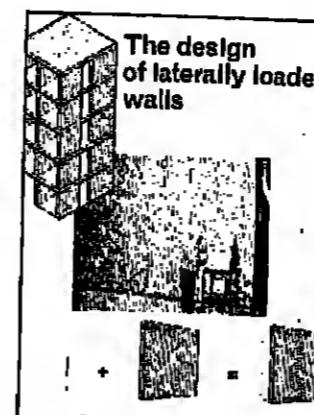
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Technical literature

Loaded walls

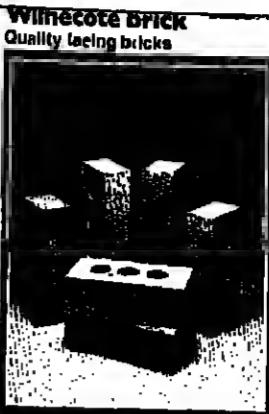
LATERALLY-loaded brick walls are the subject of a new 24-page booklet (price £1) prepared by J. Morton and published by the Brick Development Association. Based on visual presentations given during a series of seminars on BS 5628: *The structural use of masonry*. Part 1: *Unreinforced masonry*, covers both the background to the code provisions and the provisions themselves. Amendments 2/74, 345 and 4800 have been taken into account.



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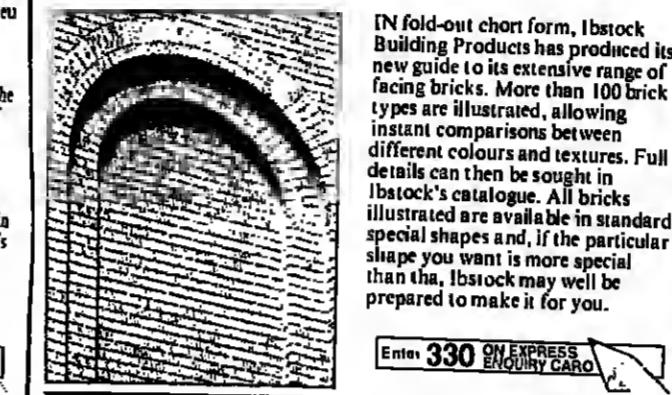
Etruria facings

MADE from Etruria marl, the Wilnecote range of quality facing bricks from Tilcon is the subject of a new four-page colour leaflet, as well as illustrating the full-colour range, the leaflet emphasises the two machine-made surface options — smooth and rusticated. In addition, hand-rusticated bricks can be supplied to order. All Wilnecote bricks conform to BS 3921: 1985 and special shapes to BS 4729: 1971 can be supplied.



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Brick chart



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Brick handling



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MANN'S Mechanical Equipment, a company which specialises in the manufacture of forklift attachments, has published a four-page colour brochure describing its extensive range of brick clamps and the various features they each display. These clamps provide a cost-effective and efficient way of moving and stacking products. Manns will also tailor-make special attachments to overcome particular handling problems.

Brick reinforcement

BECAUSE of the increasing interest in reinforced brickwork, the BRC Engineering Company has published a four-page colour brochure dealing with its stainless steel-joint reinforcement and other BRC brickwork products. The brochure describes, with clear drawings, the use of both Brickforce and Bricktor in brick and block masonry. It also contains full technical information on both types of reinforcement and the methods of their supply.



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IT will be a long time before a brick manual as comprehensive as Steetley Brick & Tile's new publication is produced. Containing full technical details and descriptions of the company's entire product range, the manual also includes brochures covering special brick shapes and other useful aspects of brick design. All are contained in a sturdy ring binder. Note: there is a cover price on this reference book, but copies will be given to key practices, free of charge.

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FIVE SCHEMES were commended in this year's Brick Development Association awards. One of them was International House, World Trade Centre, St Katharine's by the Tower, London. "... the result of the endeavours of the architects, builders and brickmakers is a building which is crisp and very appropriate in scale, fenestration and detail..."

Brickmaker — Rudgwick Brickworks Company Limited



BRICKS THAT STAND ALONE.

SINCE the turn of the century, Rudgwick Brickworks has been producing bricks of the highest quality at a sensible price. The Red Multi and Sea Sand ranges of facing bricks are fully complemented by our extensive selection of standard specials, briquettes, purpose-made and hand-made specials.

To find out about Rudgwick bricks, phone or write to Len Forrester for our colour information package.

Rudgwick Brickworks Company Ltd, Lyndwicks Street, Rudgwick, West Sussex, RH11 2DH. Telephone Rudgwick (01372) 2212.



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Technical literature

Code analysed

FOLLOWING the revision of BS 3921, the Brick Development Association has published a four-page summary of the differences between the 1974 and 1985 editions. While the comparison is not exhaustive, it highlights all significant changes. As a quick overview of the changes this document is extremely valuable, particularly in explaining the new durability classifications for bricks introduced during the revision.

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Brick pavers

FLEXIBLE clay and calcium silicate paving is the subject of the Brick Development Association's *Design Note No 9*. This 12-page booklet is a revision of *Design Note No 5* and covers brick paving in all its aspects from simple domestic pavers to heavy duty applications, such as in bus stations and on industrial sites. It contains details which cover both the design and the laying of these pavings.

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Soft mud bricks

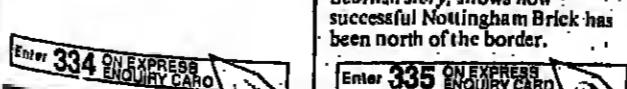
SEVERN aluvium clay is used by the Severn Valley Clay Company for the manufacture of its 11 sandstock facings. These are all illustrated in the current catalogue, together with application shots. In a pocket at the back of the brochure are two interesting leaflets which explain in some detail how these particular bricks are produced. Most of these bricks are machine-made, but the range has recently been enlarged by the introduction of a handmade facing — the Worcester Buff Sandstock.

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Engineering bricks

EDENHALL Concrete Products has issued a two-page technical bulletin concerning its Agrement-certified, engineering-quality concrete bricks. Relevant sections from the appropriate British Standard, BRE Digests and the WAA Civil Engineering Specification for the Water Industry, 2nd Edition are quoted.



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Literature pack

NOTTINGHAM BRICK has introduced a new pack of leaflets covering its Merlin and Malby facing brick ranges. Also contained in the pack is a leaflet accompanying the launch of the company's Merlin Ivory range and the launch of its Dorset Sandlight golden, through-coloured brick. A further leaflet, *Concept to conclusion — The Scotch story*, shows how successful Nottingham Brick has been north of the border.

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New data sheets

BLOCKLEYS has added a number of new data sheets to its product binder during the last few months. These include nine new sheets covering the Heritage collection which, although machine-made, have the appearance of handmade bricks. Colours range from fawn, through to red. The other new data sheet concerns Blockleys' new Ironbridge brick.

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Domestic brickwork

IBSTOCK Building Products' well-respected *Brickwork Design Magazine*, July edition, concerned itself with domestic architecture. Containing a selection of interesting housing projects, this 24-page magazine is packed with excellent photographs of good brickwork and clear detail drawings.

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Winter bricklaying

THE latest edition of the BDA's *Brick Bulletin* features the winning entry of the Quality Brickwork Awards 1986 and the winners of the Scottish Building Awards 1986. The edition contains an article on the new offices for WD-40 Company, featured in last year's BDA Brick Supplement.



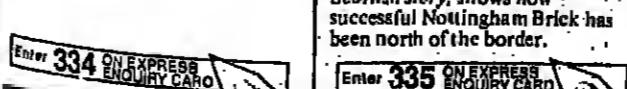
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Brick bulletin

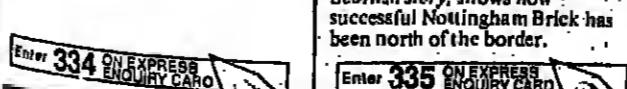
BDA has published its third Building Note. Entitled *Brickwork in winter conditions*, this four-page publication gives clear and concise recommendations for working in inclement conditions. It covers mortar mixes, precautions to be taken with the materials used and the way work should be protected. The note ends with a check list of do's and don'ts.



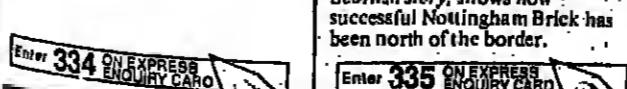
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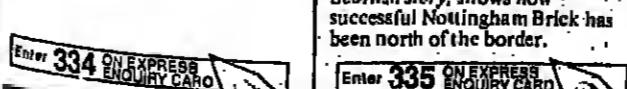
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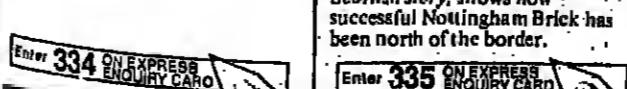
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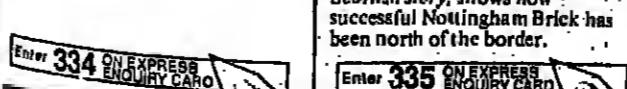
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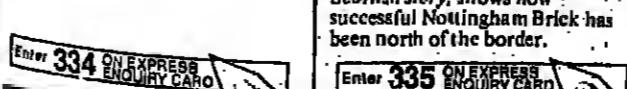
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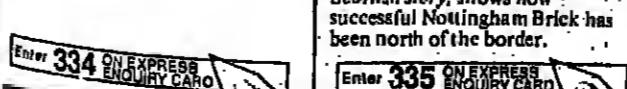
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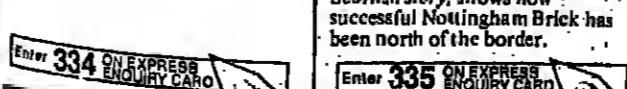
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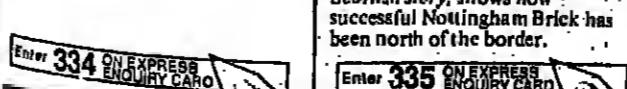
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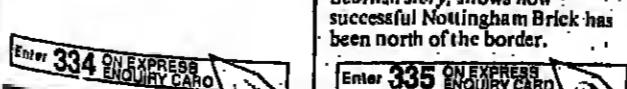
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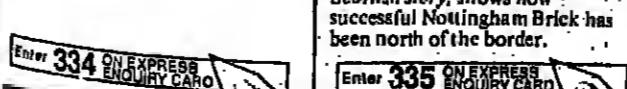
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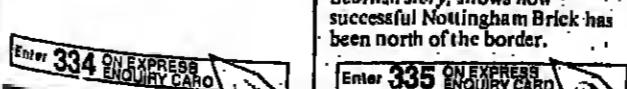
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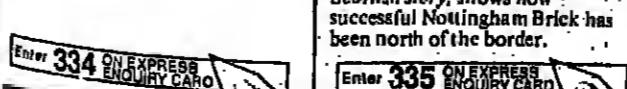
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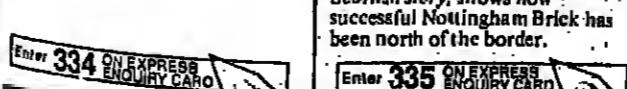
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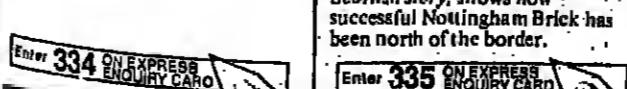
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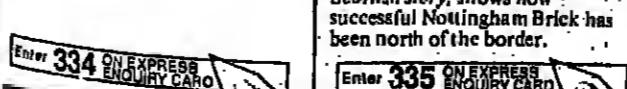
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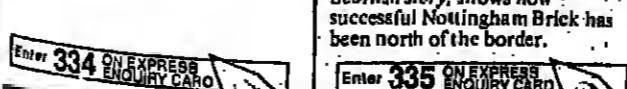
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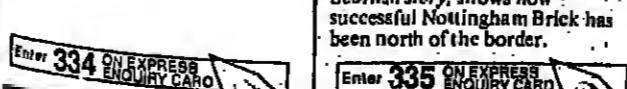
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